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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,984	03/17/2004	Donald R. Van Der Moere	D5270	3898
36409 7590 01/27/2009 INTERNATIONAL ENGINE INTELLECTUAL PROPERTY COMPANY 4201 WINFIELD ROAD P.O. BOX 1488 WARRENVILLE, IL 60555				
EXAMINER GARCIA, ERNESTO				
ART UNIT 3679		PAPER NUMBER		
NOTIFICATION DATE 01/27/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptinfo@navistar.com

Office Action Summary

Application No.

10/802,984

Applicant(s)

VAN DER MOERE ET AL.

Examiner

ERNESTO GARCIA

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-15 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-15 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Prosecution is being reopened on claims 8, 10-15, and 17-21 because a piston pin-connecting rod connection, without using a bushing, is notoriously old and well-known as evidenced by Lemelson, 4,974,498, and Ayling, 2,855,253. This is to clarify the record since the Board's decision of October 1, 2008 indicates that it is unclear whether McKone, 1,491,555, teaches a bushing despite Figure 6 not showing a bushing to be present.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Komuro et al, 5,851,659. This is the same rejection as affirmed on appeal by the Board in the decision mailed October 1, 2008 and is incorporated by reference to the Examiner's Answer mailed June 21, 2007. Prosecution of these claims remains closed.

Claim Rejections - 35 USC § 103

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komuro et al, 5,851,659. This is the same rejection as affirmed on appeal by the Board in the decision mailed October 1, 2008 and is incorporated by reference to the Examiner's Answer mailed June 21, 2007. Prosecution of this claim remains closed.

Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Kochendorfer et al., 4,406,558.

Regarding claim 8, Lemelson discloses, in Figure 2, a combination of a piston pin **15** and a connecting rod **18**. The piston pin **15** has a piston pin exterior margin. The connecting rod has a pin bore. The pin bore and the piston pin are mating. The mating is a shiftable surface-to-surface engagement without employing an intervening bushing. (note that drawing and the disclosure do not mention a bushing).

However, Lemelson fails to disclose the exterior margin having a coating being comprised of chromium-nitride. Kochendorfer et al. teach coating the exterior margin of a piston pin with a hard nitride of the metals in the third to six group of the periodic table to produce a sliding bearing layer (col. 2, lines 45-50). Applicants should note that Chromium (Cr) is in the sixth group of the periodic table and chromium-nitride falls

within the description as a layer. Therefore, as taught by Kochendorfer et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the piston pin of Lemelson with a coating of chromium-nitride to provide a sliding bearing layer. Given the modification, the coating would have been a chromium-nitride coating disposed on the tubular body and the coating would have been shiftably matable with an inside margin of the pin bore.

Regarding claim 15, Lemelson discloses, in Figure 2, a method comprising:

- forming a piston pin body **15** having an exterior margin;
- forming an inside surface margin of a connecting rod **18** of a certain material, including a surface of a pin bore; and,
- mating the exterior margin of the pin body **15** with the inside surface margin of the pin bore in a shiftable inside surface-to-surface engagement without employing an intervening bushing. However, Lemelson fails to coat the exterior margin with a chromium-nitride material.

Kochendorfer et al. teach coating the exterior margin of a piston pin with a hard nitride of the metals in the third to six group of the periodic table to produce a sliding bearing layer (col. 2, lines 45-50). Applicants should note that Chromium (Cr) is in the sixth group of the periodic table and chromium-nitride falls within the description as a layer. Therefore, as taught by Kochendorfer et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the exterior margin

of Lemelson with a coating of chromium-nitride to provide a sliding bearing layer. Given, the modification, the coating would have been mated with the surface of the pin bore in a shiftable inside surface to surface engagement without an intervening bushing.

Claims 10-12 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Kochendorfer et al., 4,406,558, as applied to claims 8 and 15, and further in view of Komuro et al., 5,851,659.

At the outset, applicants are reminded that it is the patentability of the product, not recited process steps, that is to be determined irrespective of whether only process steps are recited. Accordingly, how the Cr-N coating is deposited, e.g., by physical vapor deposition, is of little consequence when Lemelson, as modified by Kochendorfer et al., would have possessed such coating. Therefore, this limitation has been given limited patentable weight. See MPEP 2113.

Regarding claims 10 and 17, Lemelson, as modified by Kochendorfer et al., fail to deposit the chromium-nitride coating by physical vapor deposition. Komuro et al. teach depositing chromium-nitride coating through physical vapor deposition as an ion plating process to provide resistance to peeling, abrasion and baking (see Abstract). Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit the chromium-nitride

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coating by physical vapor deposition to provide resistance to peeling, abrasion, and baking.

Regarding claims 11 and 18, Lemelson, as modified by Kochendorfer et al., fails to disclose to deposit the chromium-nitride coating to a depth of between 1 and 10 microns. Komuro et al. teach a chromium-nitride coating deposited to a depth of between 1 and 80 microns (col. 2, line 40) as part of a design consideration of a sliding surface. The range of 1 and 10 microns falls within this disclosed range. Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit the chromium-nitride coating to a depth of between 1 and 10 microns as determined through routine experimentation and optimization.

Regarding claims 12 and 19, Lemelson, as modified by Kochendorfer et al. and Komuro et al., disclose the chromium-nitride coating deposited to a depth of a range of 1-80 microns (co. 2, line 40). However, Komuro et al. does not disclose "substantially 5 microns". Applicants should note, that in a design consideration, one skilled in the art will choose a depth of 5 microns thus reading on "substantially 5 microns". Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose a depth of substantially 5 microns as part of a design consideration.

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Kochendorfer et al., 4,406,558, as applied to claims 8 and 15, and further in view of Fukutome et al., 5,601,293.

Regarding claims 13 and 20, Lemelson, as modified above, fails to disclose buffing the chromium-nitride after deposition. Fukutome et al. suggest treating the surface roughness of a chromium-nitride coating to resist wear (col. 7, line 18-21) as evidenced by the results. Therefore, as taught by Fukutome et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to buff the chromium-nitride after deposition to treat the surface roughness to resist wear.

Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lemelson, 4,974,498, in view of Kochendorfer et al., 4,406,558, and Fukutome et al., 5,601,293, as applied to claims 13 and 20 above, and further in view of Wakefield, 3,757,378.

Regarding claims 14 and 21, Lemelson, as modified above, fail to disclose the buffing operation used. Wakefield teaches a centerless buffing operation to polish components. Therefore, as taught by Wakefield, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a centerless buffing operation to buff the coating of chromium-nitride to reduce friction.

Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayling, 2,855,253, in view of Kochendorfer et al., 4,406,558.

Regarding claim 8, Ayling discloses, in Figures 1-3, a combination of a piston pin **13** and a connecting rod **12**. The piston pin **13** has a piston pin exterior margin. The connecting rod has a pin bore. The pin bore and the piston pin are mating. The mating is a shiftable surface-to-surface engagement without employing an intervening bushing. (note that drawing and the disclosure do not mention a bushing).

However, Ayling fails to disclose the exterior margin having a coating being comprised of chromium-nitride. Kochendorfer et al. teach coating the exterior margin of a piston pin with a hard nitride of the metals in the third to six group of the periodic table to produce a sliding bearing layer (col. 2, lines 45-50). Applicants should note that Chromium (Cr) is in the sixth group of the periodic table and chromium-nitride falls within the description as a layer. Therefore, as taught by Kochendorfer et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the piston pin of Ayling with a coating of chromium-nitride to provide a sliding bearing layer. Given the modification, the coating would have been a chromium-nitride coating disposed on the tubular body and the coating would have been shiftable with an inside margin of the pin bore.

Regarding claim 15, Ayling discloses, in Figure 6, a method comprising:

forming a piston pin body **13** having an exterior margin;
forming an inside surface margin of a connecting rod **12** of a certain material,
including a surface of a pin bore; and,
mating the exterior margin of pin body **13** with the inside surface margin of the
pin bore in a shiftable inside surface-to-surface engagement without employing an
intervening bushing. However, Ayling fails to coat the exterior margin with a chromium-
nitride material.

Kochendorfer et al. teach coating the exterior margin of a piston pin with a hard
nitride of the metals in the third to six group of the periodic table to produce a sliding
bearing layer (col. 2, lines 45-50). Applicants should note that Chromium (Cr) is in the
sixth group of the periodic table and chromium-nitride falls within the description as a
layer. Therefore, as taught by Kochendorfer et al., it would have been obvious to one of
ordinary skill in the art at the time the invention was made to provide the exterior margin
of Ayling with a coating of chromium-nitride to provide a sliding bearing layer. Given,
the modification, the coating would have been mated with the surface of the pin bore in
a shiftable inside surface to surface engagement without an intervening bushing.

Claims 10-12 and 17-19 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Ayling, 2,855,253, in view of Kochendorfer et al., 4,406,558, as
applied to claims 8 and 15, and further in view of Komuro et al., 5,851,659.

At the outset, applicants are reminded that it is the patentability of the product, not recited process steps, that is to be determined irrespective of whether only process steps are recited. Accordingly, how the Cr-N coating is deposited, e.g., by physical vapor deposition, is of little consequence when Ayling, as modified by Kochendorfer et al., would have possessed such coating. Therefore, this limitation has been given limited patentable weight. See MPEP 2113.

Regarding claims 10 and 17, Ayling, as modified by Kochendorfer et al., fail to deposit the chromium-nitride coating by physical vapor deposition. Komuro et al. teach depositing chromium-nitride coating through physical vapor deposition as an ion plating process to provide resistance to peeling, abrasion and baking (see Abstract). Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit the chromium-nitride coating by physical vapor deposition to provide resistance to peeling, abrasion, and baking.

Regarding claims 11 and 18, Ayling, as modified by Kochendorfer et al., fails to disclose to deposit the chromium-nitride coating to a depth of between 1 and 10 microns. Komuro et al. teach a chromium-nitride coating deposited to a depth of between 1 and 80 microns (col. 2, line 40) as part of a design consideration of a sliding surface. The range of 1 and 10 microns falls within this disclosed range. Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at

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the time the invention was made to deposit the chromium-nitride coating to a depth of between 1 and 10 microns as determined through routine experimentation and optimization.

Regarding claims 12 and 19, Ayling, as modified by Kochendorfer et al. and Komuro et al., disclose the chromium-nitride coating deposited to a depth of a range of 1-80 microns (co. 2, line 40). However, Komuro et al. does not disclose "substantially 5 microns". Applicants should note, that in a design consideration, one skilled in the art will choose a depth of 5 microns thus reading on "substantially 5 microns". Therefore, as taught by Komuro et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose a depth of substantially 5 microns as part of a design consideration.

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayling, 2,855,253, in view of Kochendorfer et al., 4,406,558, as applied to claims 8 and 15, and further in view of Fukutome et al., 5,601,293.

Regarding claims 13 and 20, Ayling, as modified above, fails to disclose buffing the chromium-nitride after deposition. Fukutome et al. suggest treating the surface roughness of a chromium-nitride coating to resist wear (col. 7, line 18-21) as evidenced by the results. Therefore, as taught by Fukutome et al., it would have been obvious to

one of ordinary skill in the art at the time the invention was made to buff the chromium-nitride after deposition to treat the surface roughness to resist wear.

Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayling, 2,855,253, in view of Kochendorfer et al., 4,406,558, and Fukutome et al., 5,601,293, as applied to claims 13 and 20 above, and further in view of Wakefield, 3,757,378.

Regarding claims 14 and 21, Ayling, as modified above, fail to disclose the buffing operation used. Wakefield teaches a centerless buffing operation to polish components. Therefore, as taught by Wakefield, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a centerless buffing operation to buff the coating of chromium-nitride to reduce friction.

Conclusion

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bell, 1,451,608, Rein et al., 6,923,153, Woudwyk, 5,865,092, Monk et al., 5,542,341, Gannaway, 4,350,083, and Block, 4,095,513, show a similar piston pin and connecting rod combination utilizing no bushing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30AM-6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/E. G./

Examiner, Art Unit 3679

January 23, 2009

/Daniel P. Stodola/
Supervisory Patent Examiner, Art Unit 3679

/Frederick R Schmidt/
Director Technology Center 3600